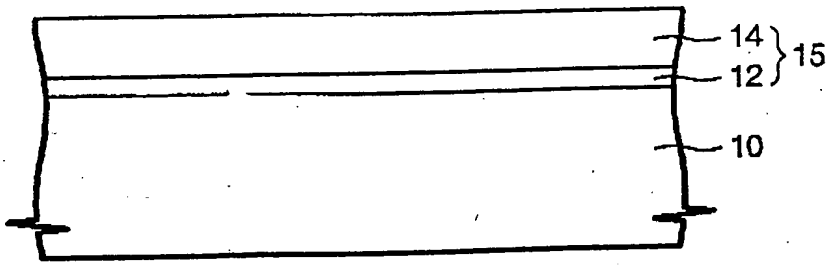


Fig. 1A

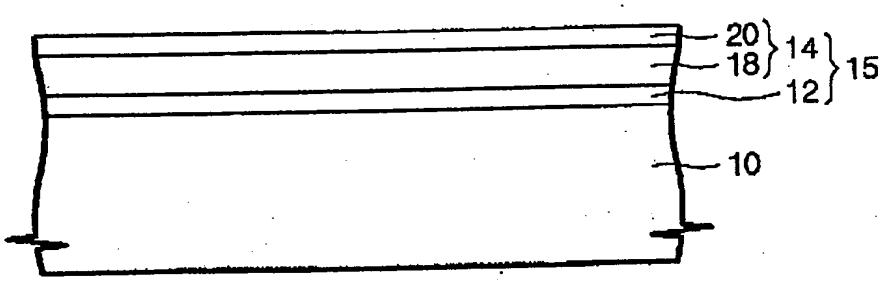


Fig. 1B

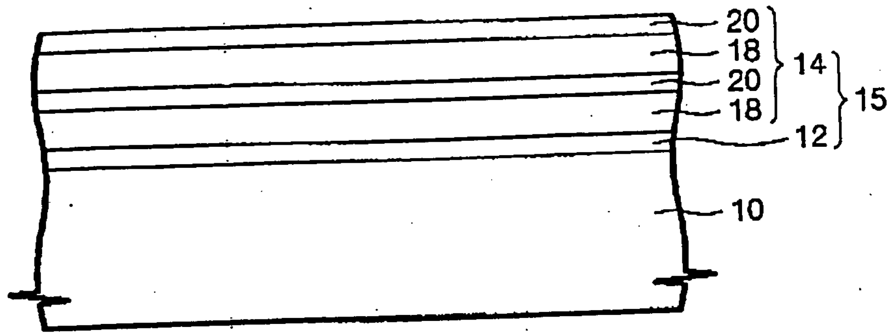


Fig. 1C

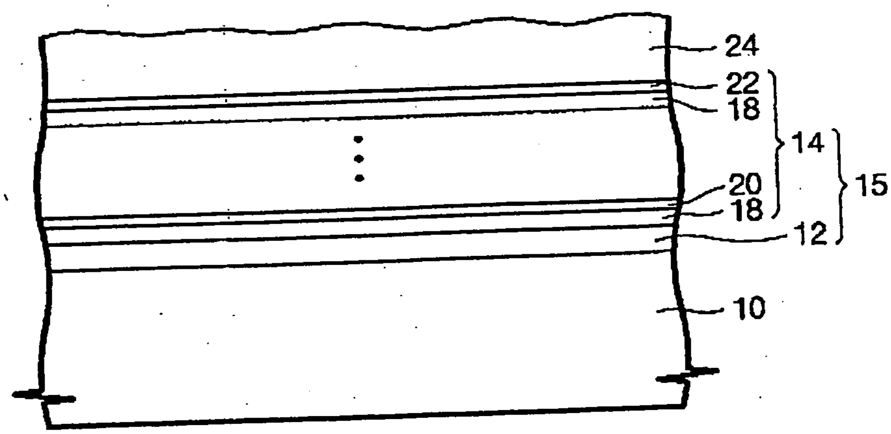
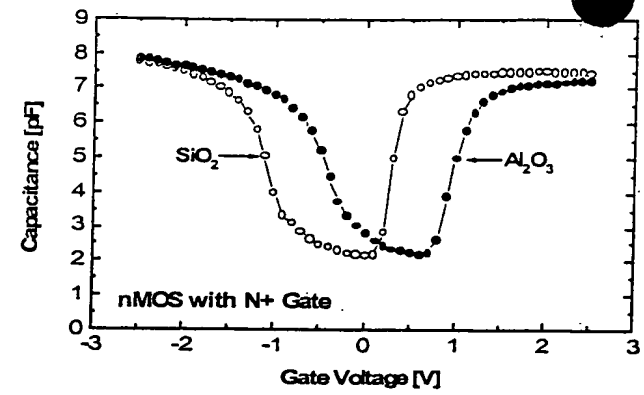
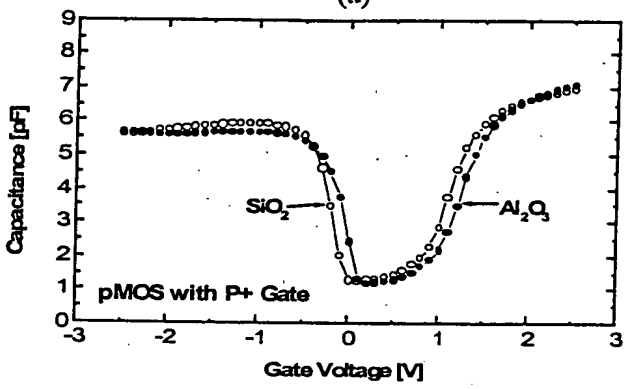


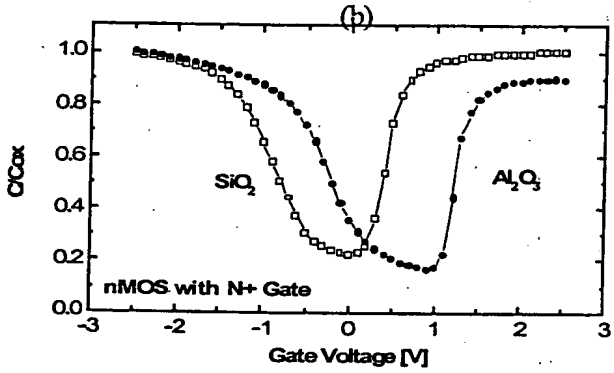
Fig. 2



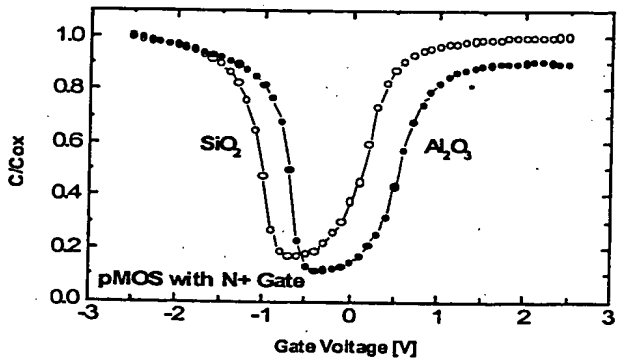
(a)



(b)



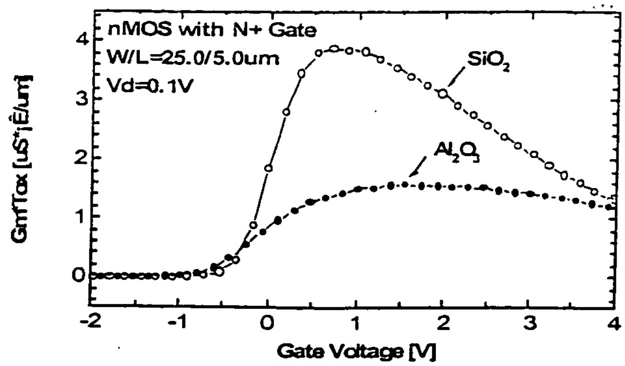
(c)



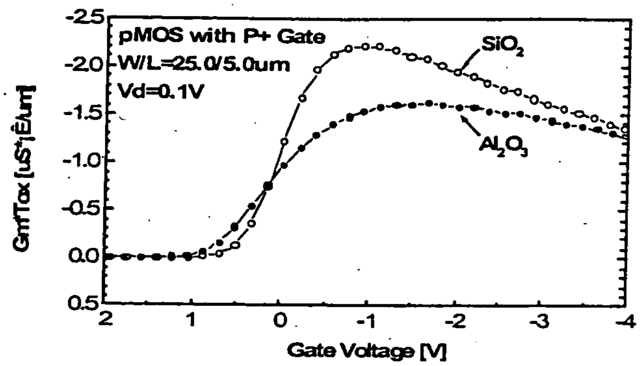
(d)

Al2O3 MOS Capacitor C-V Curves

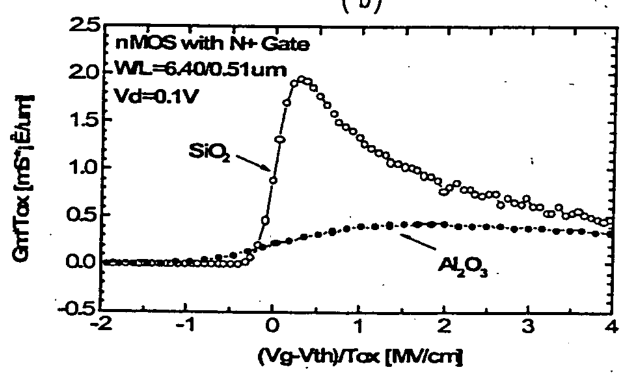
(a) n+Poly-Si/ Al_2O_3 or SiO_2/ p-Si (b) p+Poly-Si/ Al_2O_3 or SiO_2/ n-Si (c) n+Poly-Si/ Al_2O_3 or SiO_2/ p-Si (d) n+Poly-Si/ Al_2O_3 or SiO_2/ n-Si



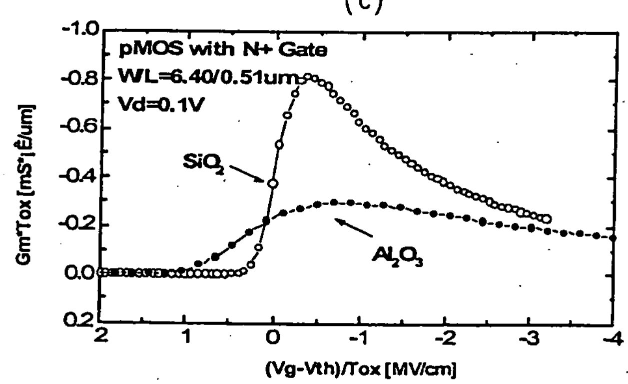
(a)



(b)



(c)



(d)

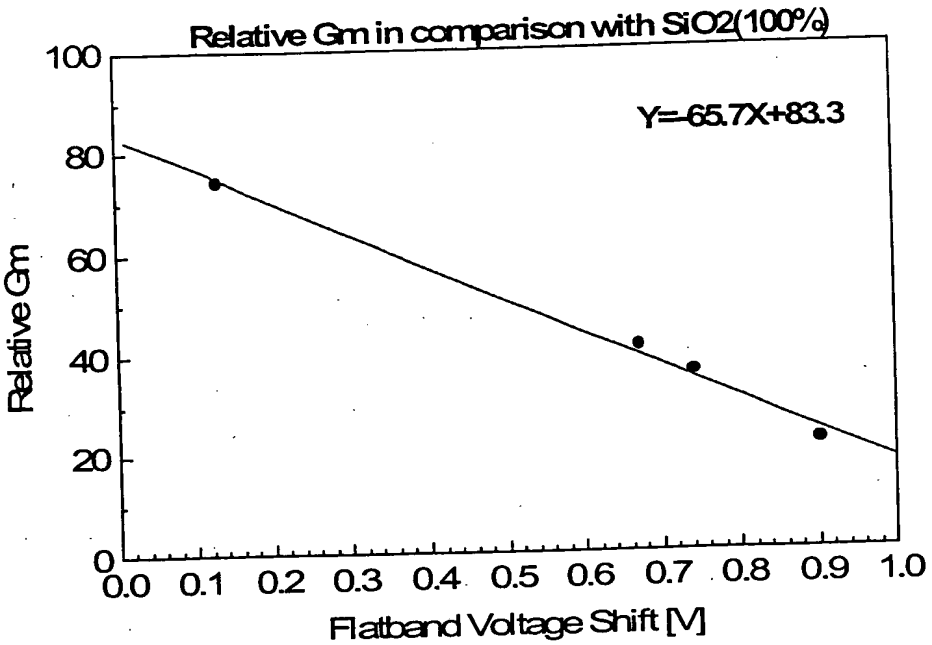
Gm(Normalized Transcoductance) vs. Vg

(a) N+Gate nMOS (b) P+Gate pMOS

(c) In-situ Doped N+Gate nMOS

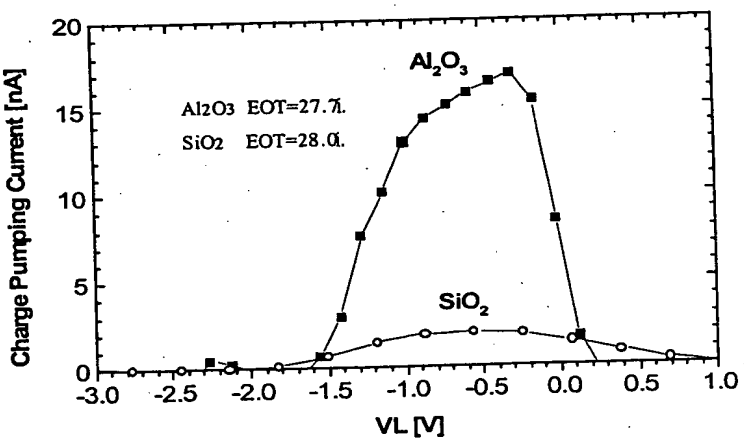
(d) In-situ Doped N+Gate pMOS

FIG. 4



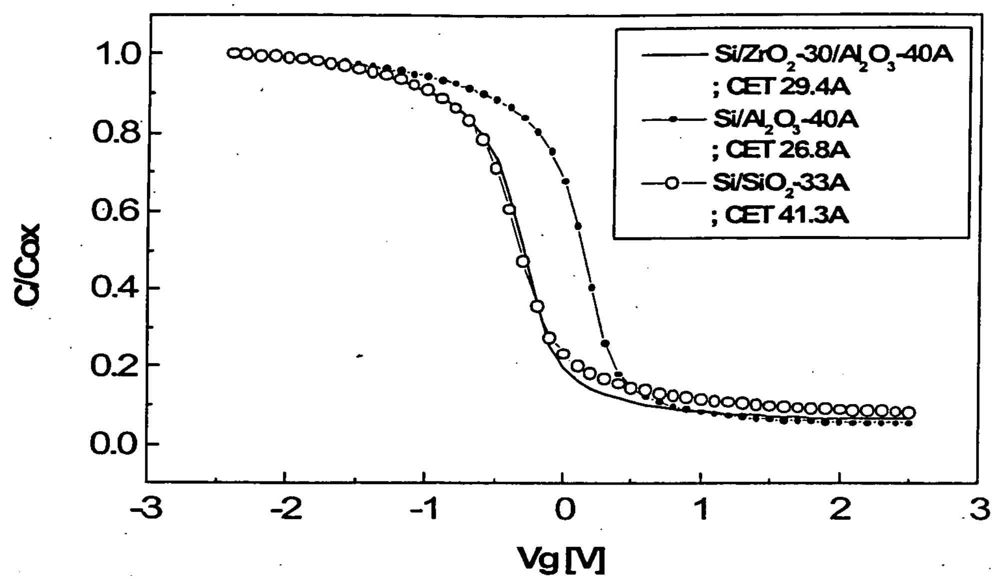
Flatband Voltage Shift vs. Relative Gm of Al_2O_3 to SiO_2

FIG. 5



Gate Base Level VL vs. Charge Pumping Current Icp

FIG. 6



C-V Curve of $ZrO_2/A1_2O_3$ Stack layer

FIG. 7